



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,919	03/01/2002	Yutaka Mimino	020129	7136
23850	7590	12/03/2003		
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			EXAMINER FARAHANI, DANA	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,919

Applicant(s)

MIMINO ET AL.

Examiner

Dana Farahani

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 21 is/are allowed.
- 6) ☒ Claim(s) 11-13 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-13, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Huang et al., hereinafter Huang (U.S. Patent 6,162,686), in view of Chang (U.S. Patent 5,427,979).

Regarding claims 11, 12, and 19, Huang discloses in figure 5, a device comprising a plate 20A provided on a semiconductor substrate 10 with insulation layer 24 between them; a plurality of line conductors 72, 62, 44, and 34, provided on the ground plate, forming a multiple layer structure with interlayer insulation films 24, 30, 42, and 66 intervening there-between that is composed of a resin insulating material; a pad 72 provided on most upper one of the interlayer insulation films; and a groove, shown in the middle, provided in the most upper one of the interlayer insulation films and between the pad and the line conductor 72 (on the right side) on the most upper one of the interlayer insulation films.

Huang does not disclose pad 72, or a line conductor, is on the upper surface of insulating film 76.

Chang discloses in figure 2, a fuse structure, wherein conductive layer 48 is on top of the insulating layer 44, which serves as a connection to other circuit elements

(see column 5, lines 18-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to put another conductive layer on top of the insulating layer in Huang structure, in order to make a conventional fuse structure, as in Chang reference, in the same structure of Huang's invention, while having an external connection to be connected to other desired circuit elements in an integrated circuit structure, in which the fuse is to be used.

Regarding claim 13, the pad has an edge closely facing to the periphery of the semiconductor substrate, the groove is formed in a region of the upper surface of the most upper one of the insulating films, except the region between the edge of the pad and the periphery of the semiconductor substrate.

Regarding claims 17 and 20, see figure 5 of Huang, wherein pad 72 is connected via a through-hole to the lower conductor films.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Chang as applied to claim 1 above, and further in view of Moritz (U.S. Patent 4,417,701).

Huang in view of Chang renders the claimed invention obvious, as discussed above, except for the insulating film being made of polyamide or benzocyclobutene.

Moritz disclose at column 2, lines 55-58, that an insulating is made of polyamide. Therefore, it would have been within the level of ordinary skill in the art at the time of the invention to choose the polyamide in the device of Huang, according to the suitability and availability of the material, and because of inherent advantages that a polyamide insulator has.

Allowable Subject Matter

4. Claims 16 and 21 are allowed.
5. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for indication of allowability of claims 16 and 21 is the inclusion therein of the limitation that of a plurality of pads in series on the upper surface of the most upper insulating film.

The primary reason for indication of allowability of claims 14 and 15 is the inclusion therein of the limitation that of the groove is divided into a plurality of portions.

Response to Arguments

7. Applicants' arguments filed 9/17/03 have been fully considered but they are not persuasive.

Applicants argue that the Huang reference fails to show a line conductor distinct from the pad(s). However, note that a pad is nothing more than a conductive film to be used as a connection part of a device. In fact, applicants disclose in the specification, on page 4, lines 3 and 4, that the pad 6 is formed in the same process as that for line

conductor 5. Therefore, unless it is specifically stated in the claims that what material the pad is composed of, any conductive film is a pad as well.

In response to applicants' argument that the groove in the Huang reference does not teach the effect of the groove in the present invention in which the groove alleviates the stress propagating from the pad to the line conductor, the Office notes that a groove is claimed. As long as the groove in the reference reads on the structure of the groove in the instant claimed invention, it would perform the same function as the groove in the instant claimed invention.

In response to applicant's argument that the technology of Chang is different from that of Huang, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, as far as an external connection component is concerned, the two references are close enough, that is they are both semiconductor devices.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is so well known in the art that an external connection is normally used in semiconductor devices, so the device could be usable in an IC structure.

Regarding applicants argument that Huang relates to a fuse structure that differs from a device having micro-strip lines, note that micro-strip lines are in fact shown in figure 5 of the reference, as small vertical conductive lines, as can clearly be seen in the figure and as discussed above.

Regarding applicants argument that the conductive strip 20A in the Huang reference merely constitute a wiring and not a ground, note that the reference discloses the structure of a (ground) plate, and applying a ground voltage, which in fact could be any arbitrary voltage, does not affect the structural limitation of the device in any way.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

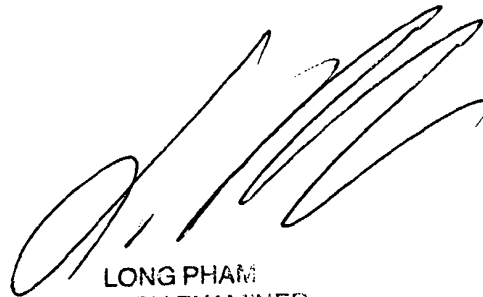
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (703)305-1914. The examiner can normally be reached on M-F 9:00AM - 6:00PM, Est. time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703)308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D. Farahani
November 24, 2003



LONG PHAM
PRIMARY EXAMINER